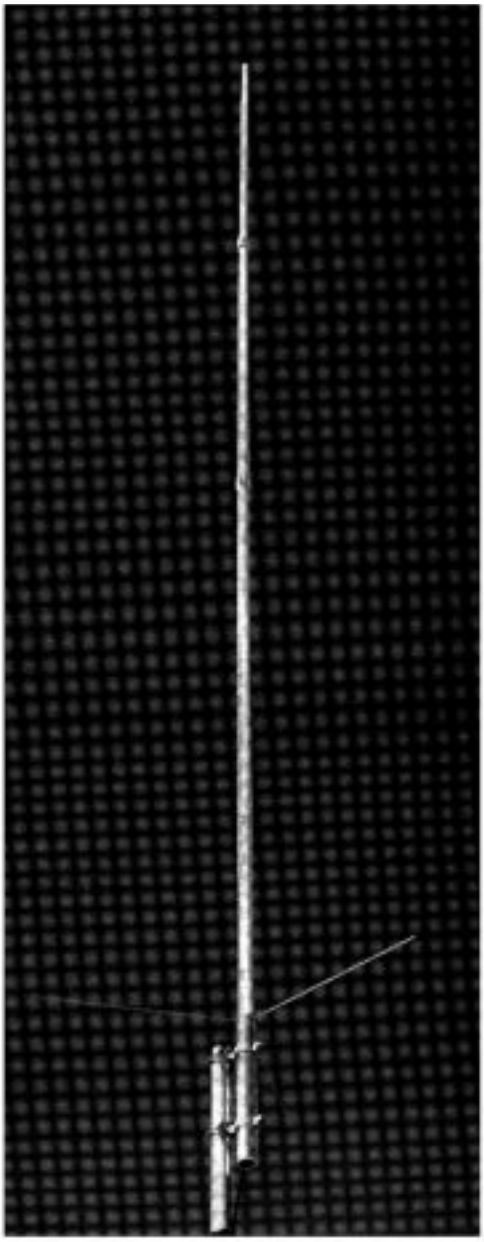


ARX-270

DUAL BAND RINGO

70 CM / 2 METER

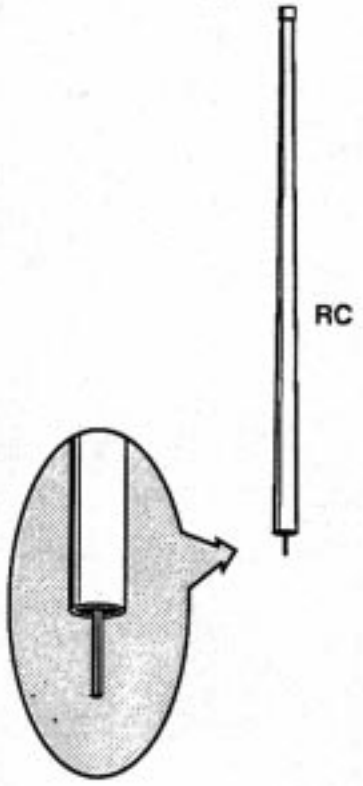
cushcraft
CORPORATION

951376 (8/92)

ARX-270 ADDITIONAL INFORMATION

If the antenna assembly becomes wedged in the radome it may be removed as follows:

If the assembly in RC is not sticking out of the open end of the tube, it may be necessary to reach for it with needle nosed pliers. Be very careful not to crush the brass tube when extracting it from the radome. If it is recessed too far into the radome to reach, gently tap the open end of the radome on a firm surface until you are able to reach the assembly.



If the coupling is not sticking out from the samll end of radome RB, insert a screwdriver or other small tool into the large end of RB and gently push on the brass assembly. If you feel resistance, shake the tube end of the radome to allow the coupling to align itself with the hole through the tube end. The tool should be at lease 6 inches (15.2 cm) long to reach far enough into the radome. Be careful not to deform the brass tube while pushing on it.

WARNING

THIS ANTENNA IS AN ELECTRICAL CONDUCTOR. CONTACT WITH POWER LINES CAN RESULT IN DEATH, OR SERIOUS INJURY. DO NOT INSTALL THIS ANTENNA WHERE THERE IS ANY POSSIBILITY OF CONTACT WITH OR HIGH VOLTAGE ARC-OVER FROM POWER CABLES OR SERVICE DROPS TO BUILDINGS. THE ANTENNA, SUPPORTING MAST AND/OR TOWER MUST NOT BE CLOSE TO ANY POWER LINES DURING INSTALLATION, REMOVAL OR IN THE EVENT PART OF THE SYSTEM SHOULD ACCIDENTALLY FALL. FOLLOW THE GUIDELINES FOR ANTENNA INSTALLATIONS RECOMMENDED BY THE U.S. CONSUMER PRODUCT SAFETY COMMISSION AND LISTED IN THE ENCLOSED PAMPHLET.

Your Cushcraft ARX-270 vertical antenna is designed and manufactured to give trouble free service. This antenna will perform as specified if the instructions and suggestions in this manual are followed and care is used in the assembly and installation. When checking the components received in your antenna package use the parts listed beside each diagram. There is a master parts list on page 2. *IMPORTANT: Save the weight label from the outside of the carton. Each antenna is weighed at the factory to verify the parts count. If you claim a missing part, you will be asked for the weight verification label.*

PLANNING

Plan your installation carefully. If you use volunteer helpers be sure that they are qualified to assist you. Make certain that everyone involved understands that you are in charge and that they must follow your instructions. If you have any doubts at all, employ a professional antenna installation company to install your antenna.

LOCATION

Location of the antenna is very important. Surrounding objects such as buildings, trees, powerlines, towers, other antennas, etc. will seriously reduce efficiency. To minimize the effects of surrounding objects, mount the antenna as high and in the clear as possible. If metal guy wires are used, they should be broken with strain insulators.

EXTREME CARE MUST BE USED FOR YOUR SAFETY. YOU MUST INSURE THAT WHILE THE ARX-270 IS IN OPERATION NEITHER PEOPLE OR PETS CAN COME IN CONTACT WITH ANY PORTION OF YOUR ANTENNA INCLUDING THE GROUND RADIALS. DEADLY VOLTAGES AND CURRENTS MAY EXIST. ALSO, SINCE THE EFFECTS OF EXPOSURE TO RF ARE NOT FULLY UNDERSTOOD, LONG TERM EXPOSURE TO INTENSE RF FIELDS IS NOT RECOMMENDED. THERE IS A WARNING STICKER PROVIDED THAT IS TO BE ATTACHED TO THE BASE OF THE ARX-270.

MOUNTING

The ARX-270 will take up to a 2" (5.1 cm) OD mast. For all installations, the antenna must be mounted on the top 6 inches (15 cm) of a mast. See figure G for details. If you side mount this antenna on a tower, it will require a short mast secured at two points. The mast should be kept at least 16 inches (40.6 cm) away from the tower.

SYSTEM GROUNDING

Direct grounding of the antenna mast is very important. This serves as protection from lightning strikes and static buildup, and from high voltages which may be present in the equipment attached to the antenna. A good electrical connection should be made to one or more ground rods directly at the base of the antenna using a least #10 AWG ground wire and non-corrosive hardware. For details and safety standards, consult the National Electrical Code. You should also use a coaxial lightning arrestor. Cushcraft offers several different models, such as the LAC-1, LAC-2 or the LAC-4 series.

The ARX-270 requires a good RF ground system for proper performance. See figure F for ground radial installation.

ASSEMBLY

Assemble your ARX-270 by following steps 1 through 5.

TESTING

The ARX-270 doesn't require any tuning. You may check VSWR with a good quality 50 Ohm VHF/UHF VSWR meter. Keep away from the antenna when making VSWR measurements. A VSWR of 1.5:1 meets commercial standards. If the VSWR is less than 2:1 this antenna will radiate an optimum signal and meet all specifications.

MASTER PARTS LIST

KEY	P/N	DESCRIPTION	QTY	KEY	P/N	DESCRIPTION	QTY
RA		Lower radome assembly	1	119	010119	5/16" (.8 cm) stainless steel lock washer	4
RB		Middle radome assembly	1	214	010214	1/4-20 x 3/4" (1.9 cm) stainless steel hex head bolt	2
RC		Upper radome assembly	1				
IG		20-1/2" (52.1 cm) threaded ground radial	3	318	153318	Lower radome clamp	2
				319	153319	Upper radome clamp	2
9	010009	8-32 x 5/8" (1.6 cm) stainless steel screw	4	325	153325	1" x 1/2" (2.5 x 1.3 cm) gasket	1
11	010011	8-32 stainless steel hex nut	7	326	153326	3/4" x 1/2" (1.9 x 1.3 cm) gasket	1
26	290326	Warning label	1	331	020331	5/64" (.2 cm) allen wrench	1
84	010084	1/4" (.63 cm) stainless steel split lock washer	2	339	323339	Aluminum mounting clamp	2
85	010085	1/4-20 stainless steel hex nut	2	366	013366	1/8" (.32 cm) stainless steel set screw	2
116	240116	Silicone grease packet	3	404	010404	5/16" x 3-1/4" (.8 x 8.3 cm) stainless steel U-bolt	2
118	010118	5/16"-18 (.8 cm) stainless steel hex nut	4	941	011941	#8 stainless steel lock washer	7

IMPORTANT: The radiator assemblies inside the top 2 radome sections are free floating and can fall out if held vertically or shaken.

#1 - ATTACH MOUNTING CLAMPS

Because of the rivet in the middle of the aluminum base, the mounting clamps (339) slide on one from the top (over the fiberglass) and one from the bottom (over the pigtail). Align them as shown (figure 1) and secure with hex head bolt (214) lock washer (84) and nut (85).

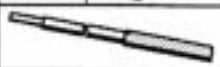
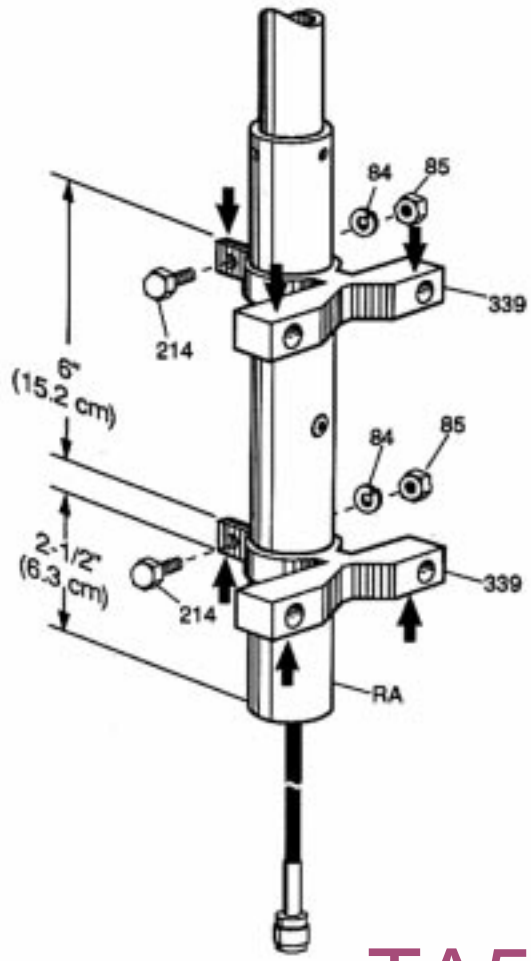
KEY	P/N		DESC.	SIZE	QTY
84	010084		S.S. SPLIT LOCK WASHER	1/4" (.63 cm)	2
85	010085		S.S. HEX NUT	1/4" (.63 cm)	2
214	010214		S.S. HEX HEAD BOLT	1/4-20 x 3/4" (1.9 cm)	2
339	323339		ALU. MOUNTING CLAMP		2
RA			LOWER RADOME ASSEMBLY		1

FIGURE A



#2 - ASSEMBLE RADOME

Prepare a clean flat surface at least 16-1/2 feet (5 meters) long by 3 feet (1 meter) wide. Place the radomes RA, RB, and RC so that they lie in a straight line tapering from the largest diameter at the base to the smallest at the tip. Slide the larger gasket (325) onto the thicker end of RB. Slide the smaller gasket (326) onto the thicker end of RC.

STEP ONE: Insert the brass tube from RC into the brass coupling at the top of RB until it stops. Tighten with set screw (366).

STEP TWO: After the two brass assemblies have been joined, take hold and push the joined assembly until the brass rod extends one inch (2.5 cm) from the large end of RB. Do not insert RB into RC yet.

IMPORTANT: The radiator assemblies inside the top 2 radome sections are free floating and can fall out if held vertically or shaken.

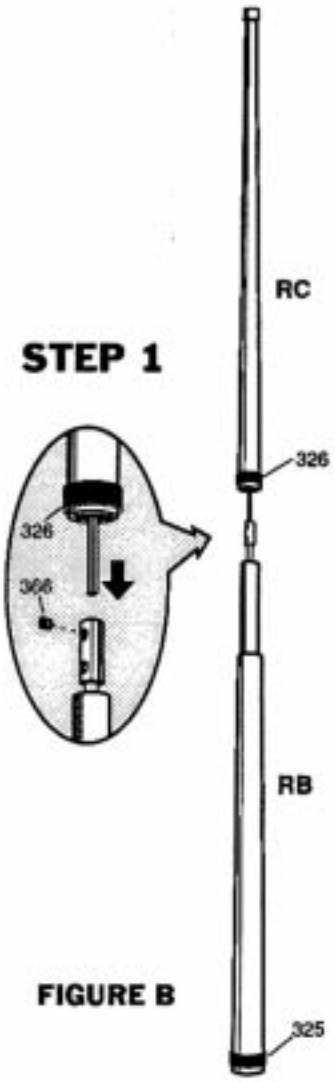


FIGURE B

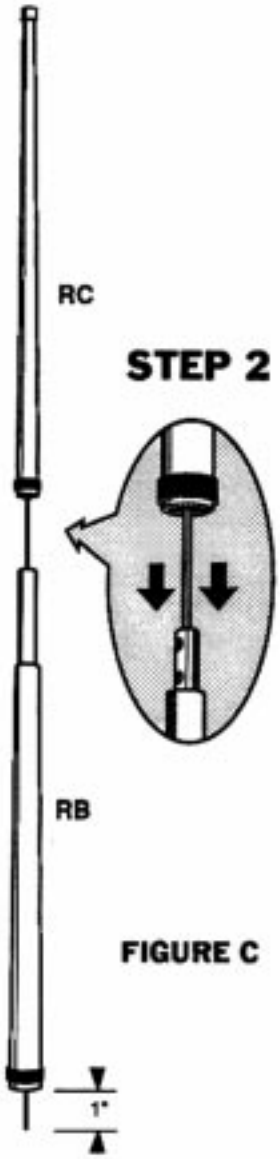


FIGURE C

KEY	PN		DESC.	SIZE	QTY
RA			LOWER RADOME ASS'Y		1
RB			MIDDLE RADOME ASS'Y		1
RC			UPPER RADOME ASS'Y		1
116	240116		SILICONE GREASE		2
325	153325		GASKET	1" x 1/2" (2.5 x 1.3 cm)	1
326	153326		GASKET	3/4" x 1/2" (1.9 x 1.3 cm)	1
366	013366		S.S. SET SCREW	1/8" (.3 cm)	2

STEP 3

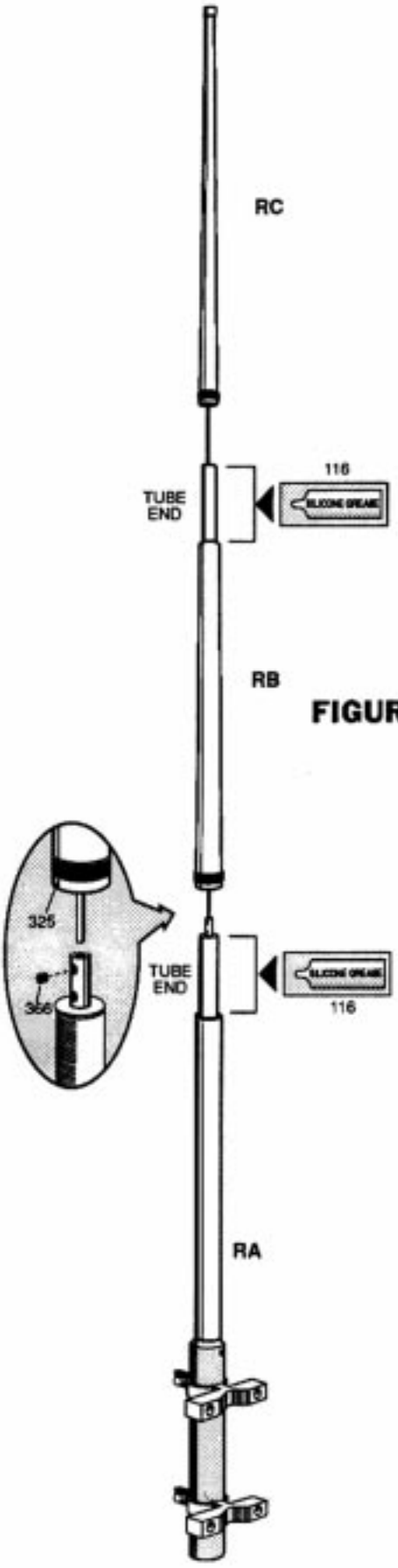


FIGURE D

STEP THREE: Insert the brass tube from RB into the coupling on RA until it stops. Tighten with set screw (366).

Apply silicone grease to tube ends per figure D. Slide RB over RA until it stops. Twisting may be necessary. Remove excess silicone. Slide the rubber gasket (325) until it is centered over the joint.

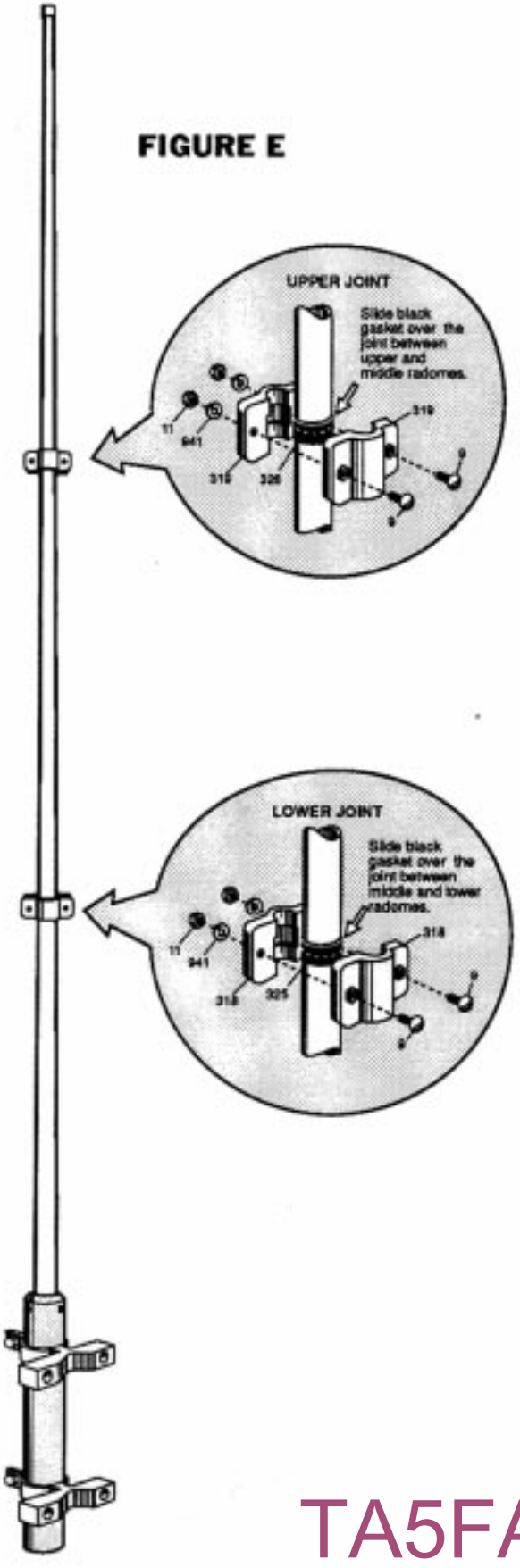
Slide RC over RB until it stops. Remove excess silicone and slide gasket (326) until it is centered over the joint.

#3 - ATTACH RADOME CLAMPS

Place the lower radome clamps (318) over the gasket making sure the gasket is in the grooves of the clamps. Place screws (9), washers (941) and nuts (11) in the clamps and tighten them together. Do the same with the upper radome clamps (319).

KEY	PN		DESC.	SIZE	QTY
9	010009		SS SCREW	8-32 x 5/8" (1.6 cm)	4
11	010011		SS HEX NUT	8-32	4
318	153318		LOWER RADOME CLAMP	2-1/4" x 1" (5.7 x 2.5 cm)	2
319	153319		UPPER RADOME CLAMP	2" x 1" (5.1 x 2.5 cm)	2
325	153325		LOWER GASKET	1" x 1/2" (2.5 x 1.3 cm)	1
326	153326		UPPER GASKET	3/4" x 1/2" (1.9 x 1.3 cm)	1
941	011941		SS LOCK WASHER	#8	4

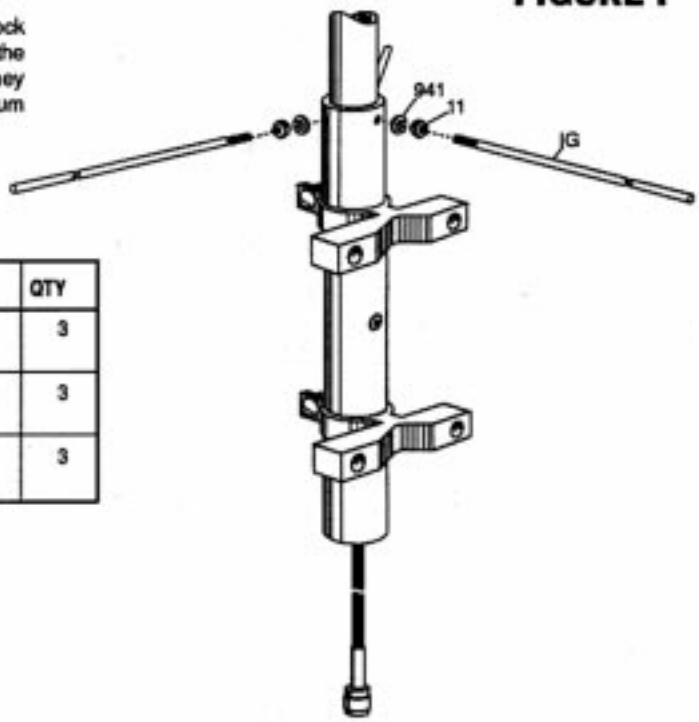
FIGURE E



#4 - INSTALL RADIALS

Thread a nut (11) onto the end of each radial (IG). Slide a lock washer (941) onto the threaded end of each radial. Thread the radials into the three holes at the top of the aluminum base until they are hand tight. Tighten the nuts using care not to strip the aluminum threads.

FIGURE F

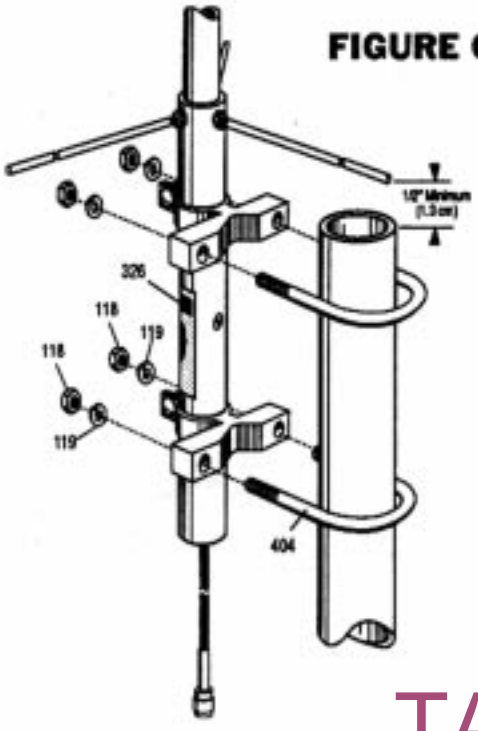


KEY	PN		DESC.	SIZE	QTY
IG			GROUND RADIAL	20-1/2" (52 cm)	3
11	010011		SS HEX NUT	8-32	3
941	011941		SS LOCK WASHER	#8	3

#5 - MAST MOUNT

Place a danger label (326) over the base tube. Attach the antenna to your mast using U-bolts (404), lock washers (119) and nuts (118). Make sure that the top of the mast remains at least 1/2" (1.3 cm) below the plane of the radials.

FIGURE G



KEY	PN		DESC.	SIZE	QTY
26	290326		WARNING LABEL		1
118	010118		SS HEX NUT	5/16"-18 (.8 cm)	4
119	010119		SS LOCK WASHER	5/16" (.8 cm)	4
404	010404		SS U-BOLT	5/16" x 3-1/4" (.8 x 8.3 cm)	2

NOTE: After weatherproofing the coax connection with your feedline, secure the feedline firmly to your mast.

SPECIFICATIONS

Model	ARX-270	
Frequency, MHz	144-148	430-450
VSWR 1.2:1 Typical		
2:1 Bandwidth in MHz	>4	>20
Gain, dB	9.0	12
Power Rating, Watts FM	200	200
Radiation Pattern, Degrees	27	7
Horizontal Radiation		
Pattern, Degrees	360	360
Base Diameter, in (cm)	1-1/2 (3.8)	
Height, ft (m)	16-1/2 (5)	
Mast Size Range, in (cm)	1.25-2.0 (3.2-5.1)	
Radial Length, in (cm)	20-1/2 (52)	
Wind Load, ft² (m²)	0.95 (0.088)	
Weight, lb (kg)	5.0 (2.3)	

LIMITED WARRANTY

Cushcraft Corporation, P.O. Box 4680, Manchester, New Hampshire 03108, warrants to the original consumer purchaser for one year from date of purchase that each Cushcraft antenna is free of defects in material or workmanship. If, in the judgement of Cushcraft, any such antenna is defective, then Cushcraft Corporation will, at its option, repair or replace the antenna at its expense within thirty days of the date the antenna is returned (at purchasers expense) to Cushcraft or one of its authorized representatives. This warranty is in lieu of all other expressed warranties, any implied warranty is limited in duration to one year. Cushcraft Corporation shall not be liable for any incidental or consequential damages which may result from a defect. Some states do not allow limitations on how long an implied warranty lasts or exclusions or limitations of incidental or consequential damages, so the above limitation and exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This warranty does not extend to any products which have been subject to misuse, neglect, accident or improper installation. Any repairs or alterations outside of the Cushcraft factory will nullify this warranty.

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